

Business and Capital Markets Environment

My thoughts

Equity Markets

Nifty is 43% higher than pre Covid (around 2.5 years)



Interest Rates

Indian Interest Rates



US Interest Rates



What about Inflation?

The answer:

Supply shocks & intact demand

China East to US West Container Shipping Rates

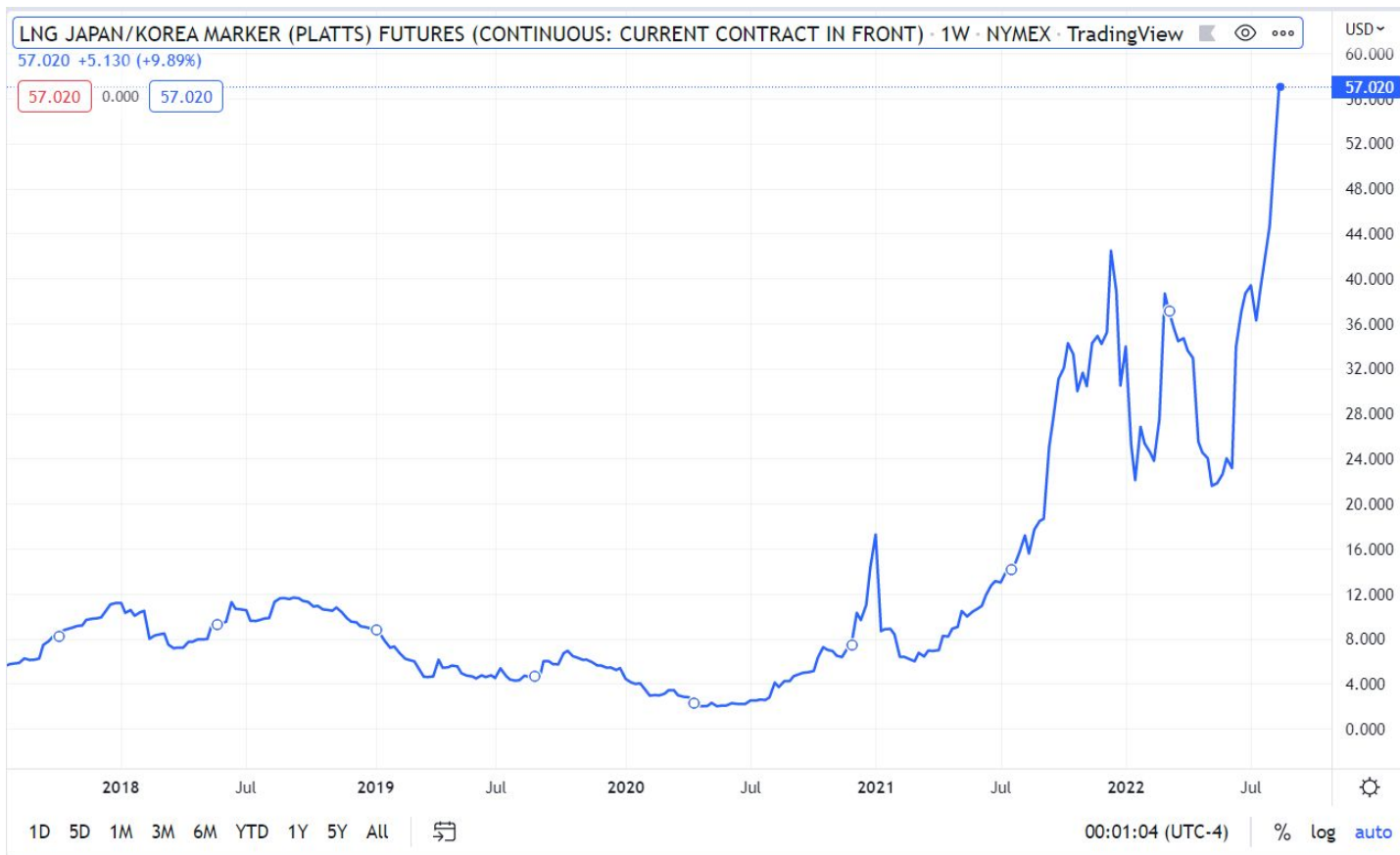
Source: FreightOS website



Crude Oil



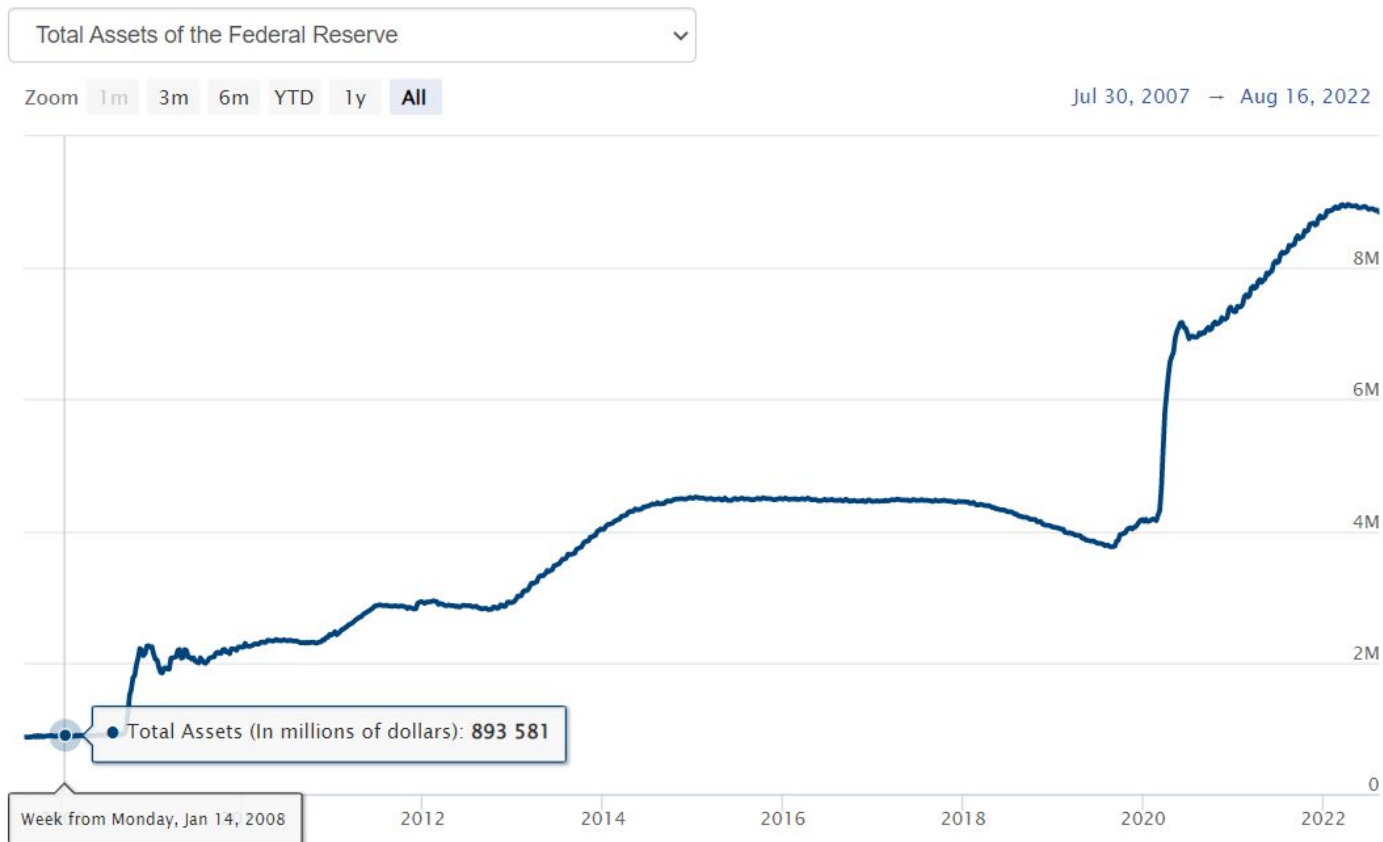
LNG



Coal



US Fed Balance Sheet

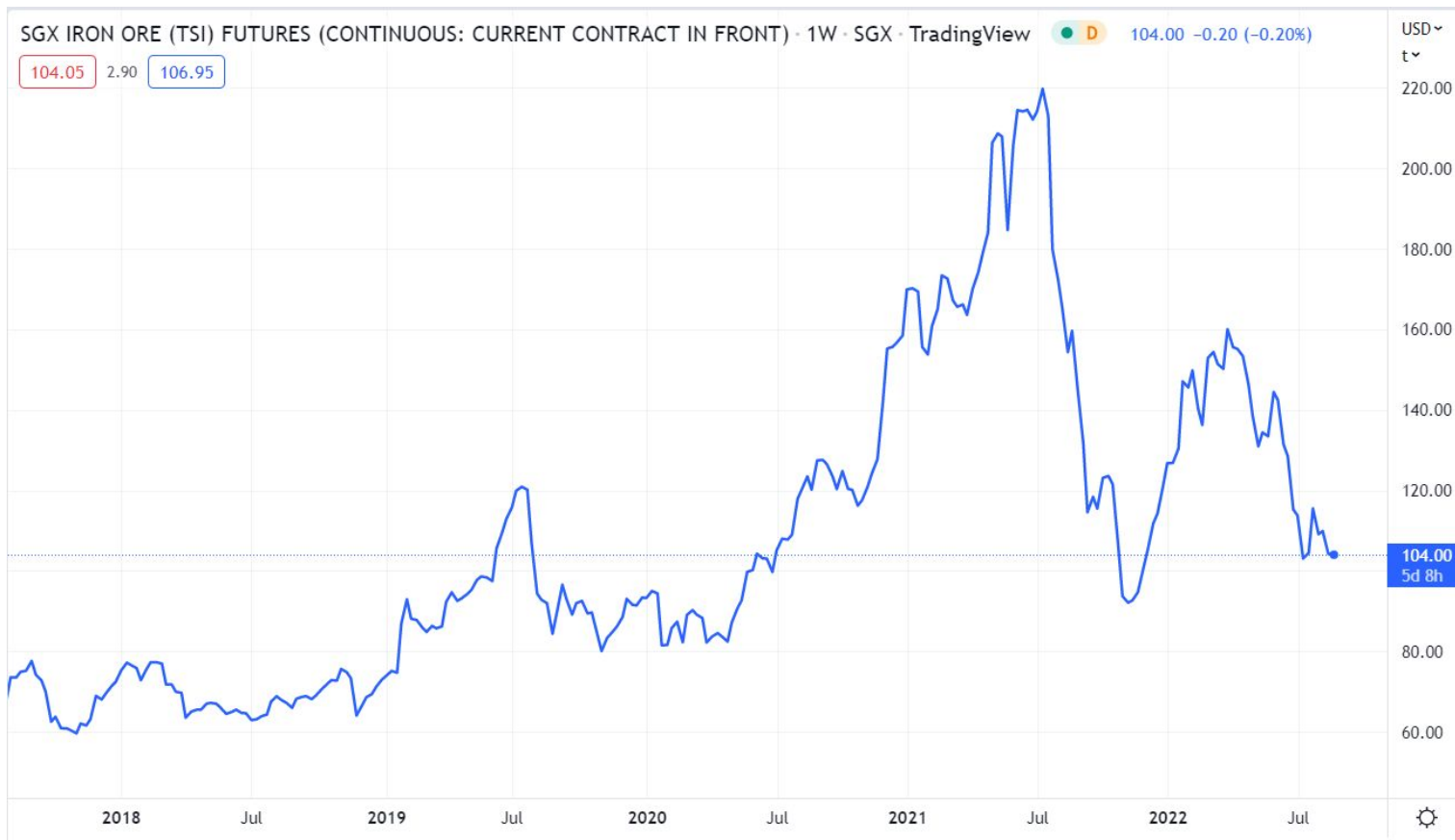


Path ahead

Baltic Dry Index



Iron Ore



Copper



Aluminium



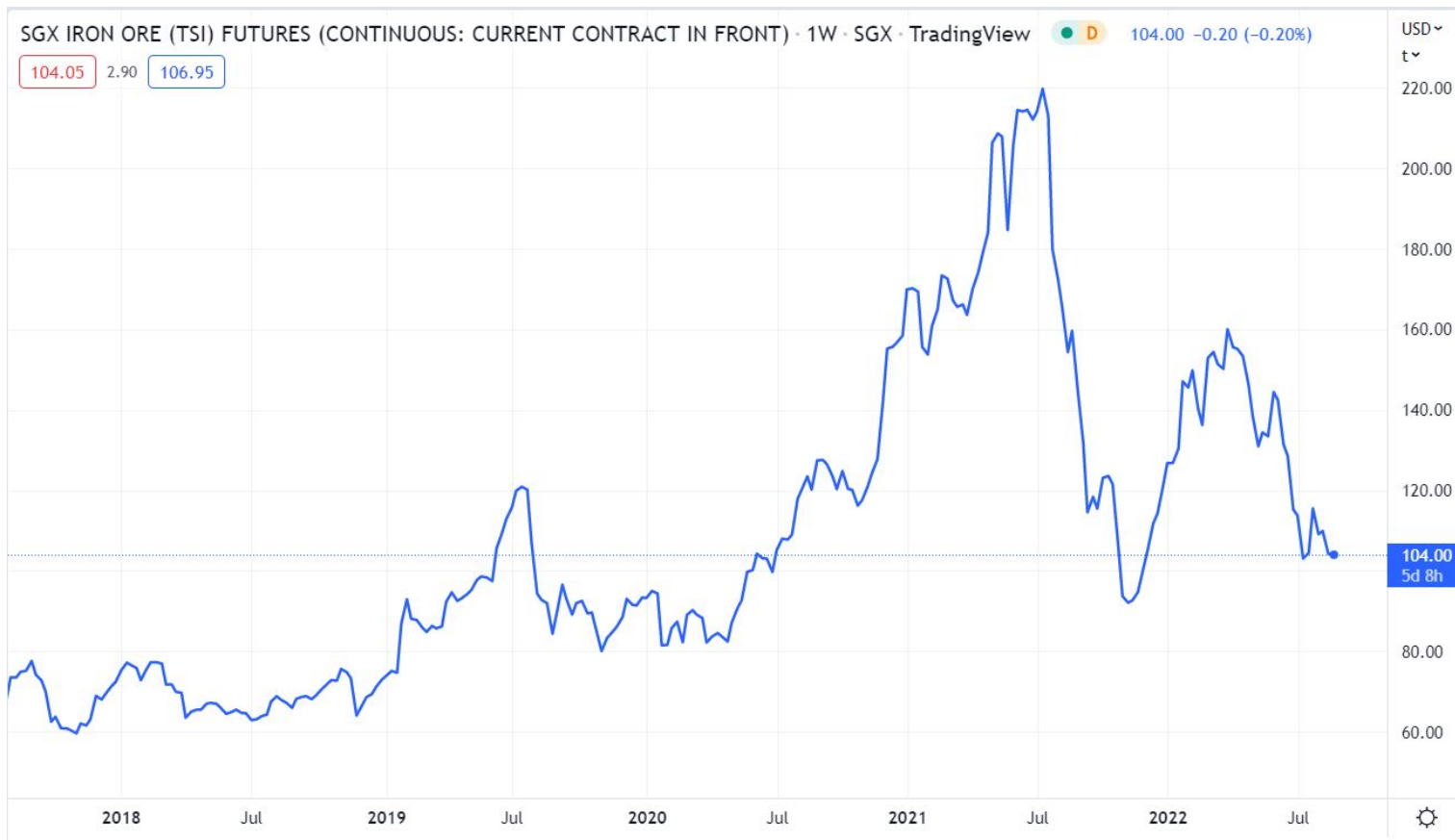
Wheat



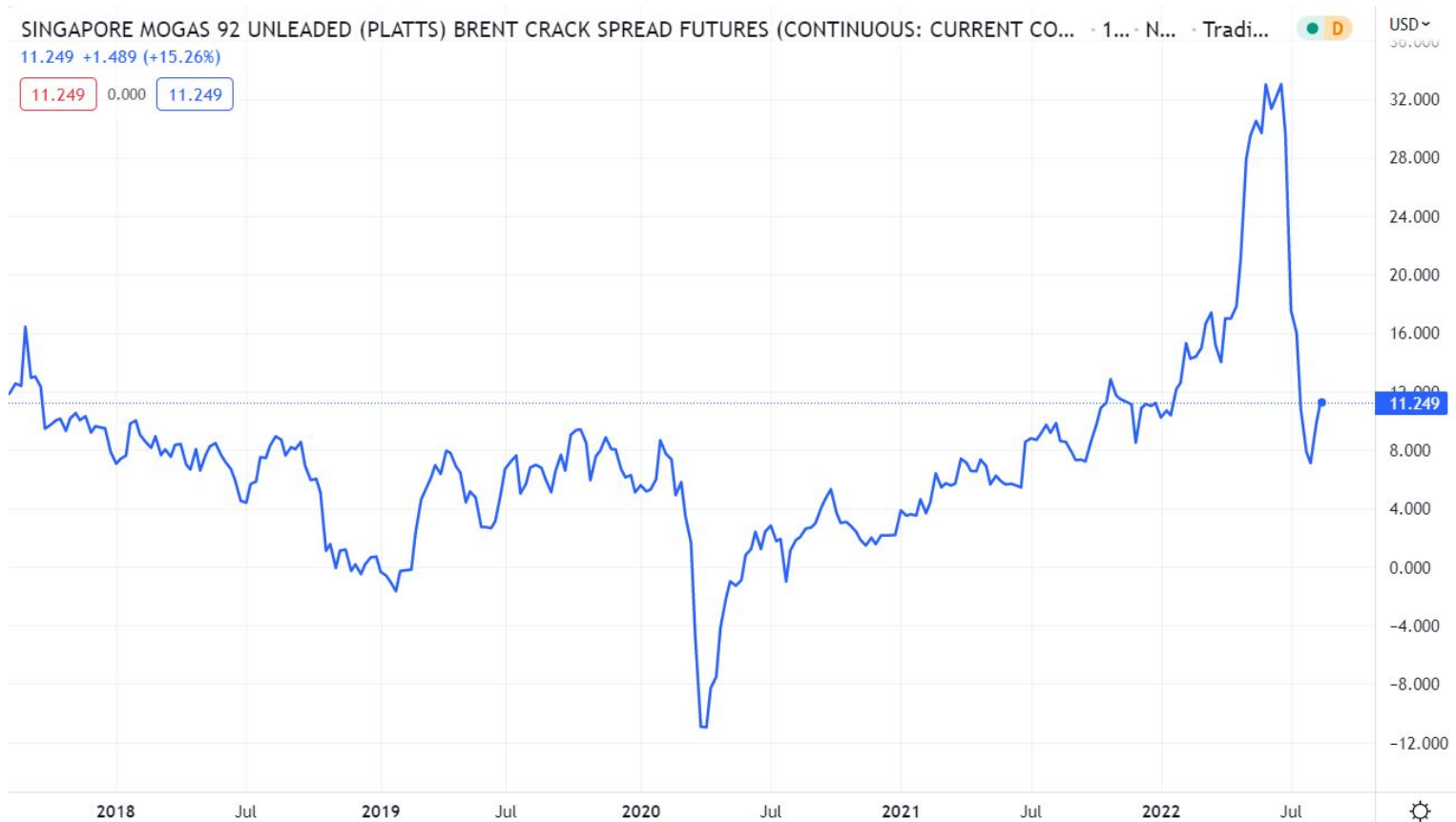
Crude Palm Oil



Iron Ore



Crude Refining Margins





Nassim Nicholas Taleb 

@nntaleb



I've seen gluts not followed by shortages, but I've never seen a shortage not followed by a glut.

1:10 AM · Sep 12, 2021 · Twitter Web App



190 Retweets **51** Quote Tweets **1,775** Likes



TLDR, It is a normal world

Longer term trends

1. The death of Tech has been highly exaggerated

Nasdaq +37% in Dollar terms vs Pre Covid



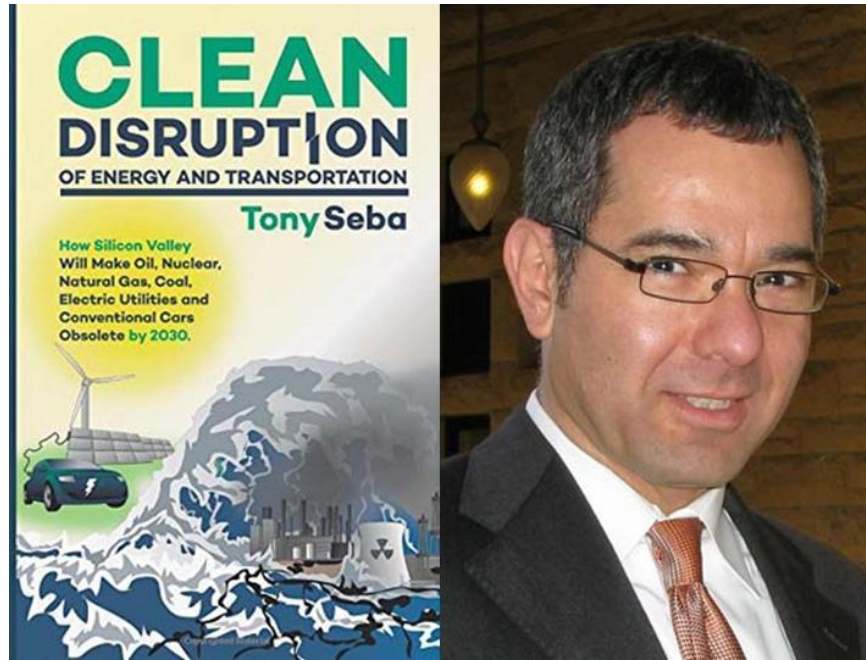
The death of Tech has been highly exaggerated

- Digital advertising not spray and pray
- Cloud computing and not on premise servers
- Streaming not linear TV / Radio

2. Energy Transition

Meh





Clean Disruption

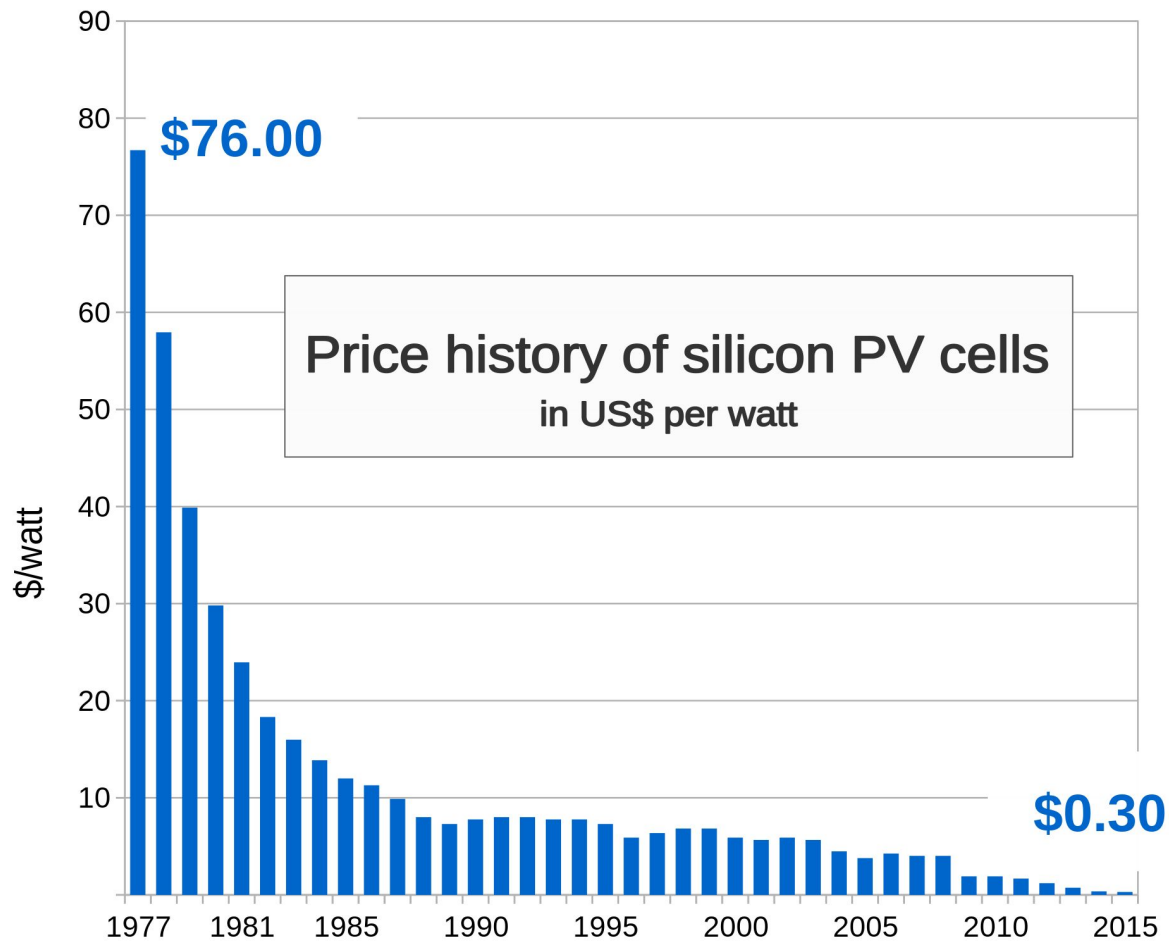
What it means for investing
(Tony Seba, Elon Musk, Wang Chuanfu)

Companies affected

- Reliance
- Adani Green
- Adani Transmission
- Adani Total Gas
- Maruti Suzuki
- ONGC
- Power Grid
- NTPC
- ONGC

Companies affected

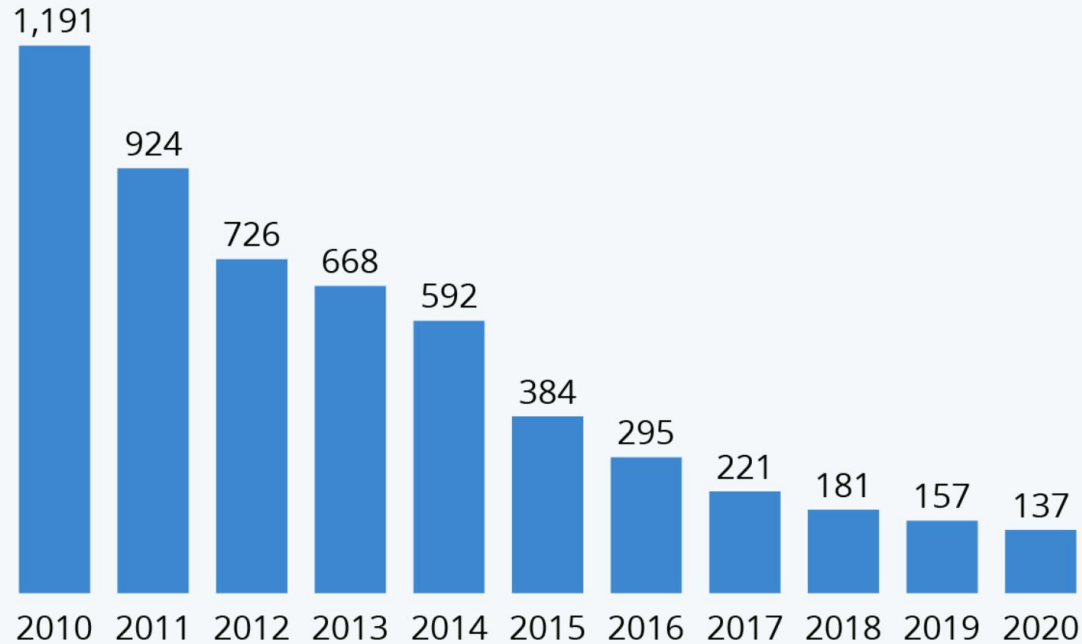
- Tata Motors
- M&M
- Coal India
- Bajaj Auto
- Indian Oil Corp
- Adani Power
- BPCL
- Tata Power
- All the lenders (Banks)



Source: Bloomberg New Energy Finance & pv.energytrend.com

Lithium Battery Prices Plunge

Volume-weighted average of lithium-ion battery price
from all sectors (in USD)

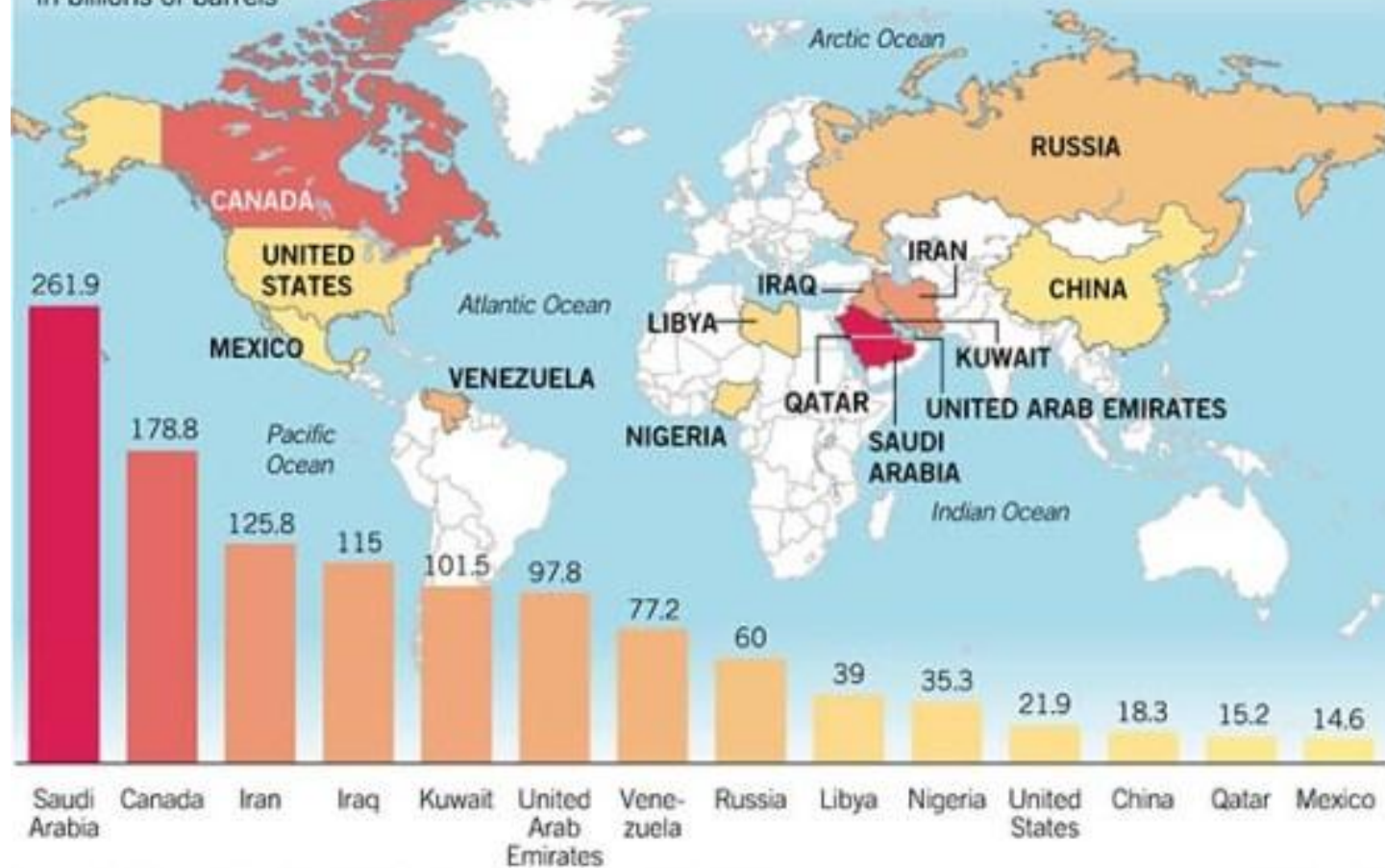


Source: Bloomberg



Countries with the biggest oil reserves, 2005

In billions of barrels



Sources: U.S. Energy Information Administration, Oil & Gas Journal, Map: ESRI

The Chronicle

Renewable Energy



Electricity grid price parity or less in a lot of places

- USA
- Australia
- 80% of the world
- India

Maharashtra State Electricity Distribution Company ([MSEDCL](#)) has invited bids to procure 1,000 MW of solar power from projects developed in the state.

The last date to submit the bids is August 1, 2022. Bids will be opened on the same day.

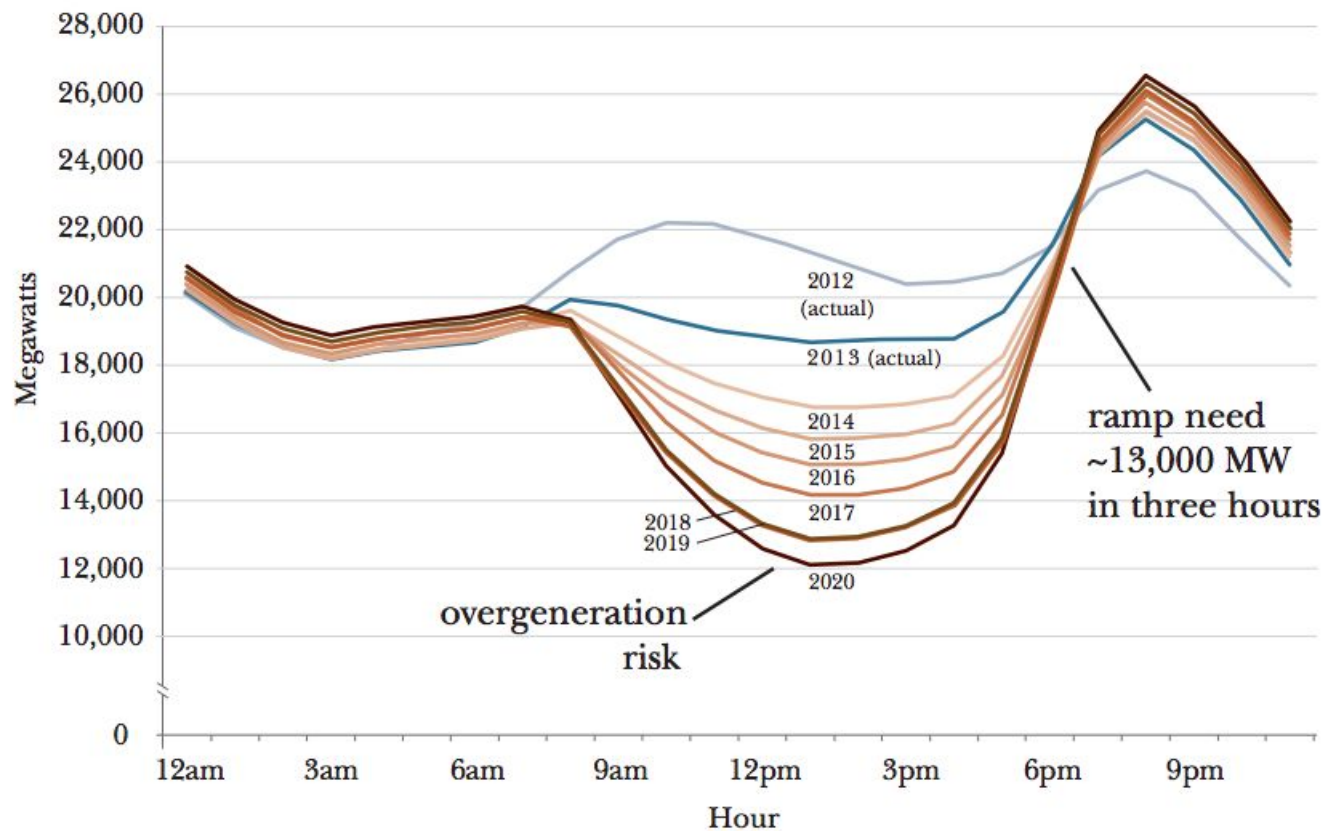
MSEDCL has set a ceiling tariff of ₹3.10 (~\$0.039)/kWh for the tender.

Electricity prices

Indian Energy Exchange

- June 1, 2022
 - 00:00 - 00:15 Rs. 12.00
 - 09:00 - 09:15 Rs. 2.80
- July 1, 2022
 - 00:00 - 00:15 Rs. 5.23
 - 09:00 - 09:15 Rs. 2.12

Figure 5
California ISO's "Duck Curve"
(Net load–March 31)



Storage



Lithium Ion not the only game

- Gravity (Hydro or gravel)
- Molten Salt / Solar Salt (Thermal batteries)
- Different types of batteries

New pricing mechanism for pumped-hydro storage in India

A new report recommends a differential pricing mechanism for pumped-hydro energy storage (PHES) projects in pumping (off-peak operation) and generating mode (peak operation).

JUNE 29, 2022 **UMA GUPTA**

ENERGY STORAGE

TECHNOLOGY AND R&D

UTILITY SCALE PV

UTILITY SCALE STORAGE

INDIA



The main pump-generator of a pumped-hydro facility

Image: PlayMistyForMe /Wikimedia Commons

Sungrow equips Tata Power battery storage project in Ladakh

Chinese inverter maker Sungrow is supplying its SC2500UD power conversion system and ST2752UX liquid-cooled energy storage system to Tata Power Solar for an integrated battery energy storage project in Ladakh.

MAY 24, 2022 **UMA GUPTA**

HIGHLIGHTS

MARKETS

MARKETS & POLICY

UTILITY SCALE PV

UTILITY SCALE STORAGE

ASIA

INDIA



BUSINESS

Amara Raja to set up green hydrogen fuel outlet in Leh for NTPC



SPECIAL CORRESPONDENT

HYDERABAD JUNE 13, 2022 20:43 IST

UPDATED: JUNE 13, 2022 22:37 IST

SHARE ARTICLE



PRINT



Amara Raja Power Systems will be setting up a green hydrogen fuelling station, the first such in the country, in Leh, Ladakh, for the National Thermal Power Corporation (NTPC).

The pilot project will produce a minimum of 80kg/day of 99.97% pure hydrogen that will be compressed, stored and dispensed, the Amara Raja group entity said.

India Solar Demand Forecast (MW)



Source: Mercom India Research (Mar 2021)

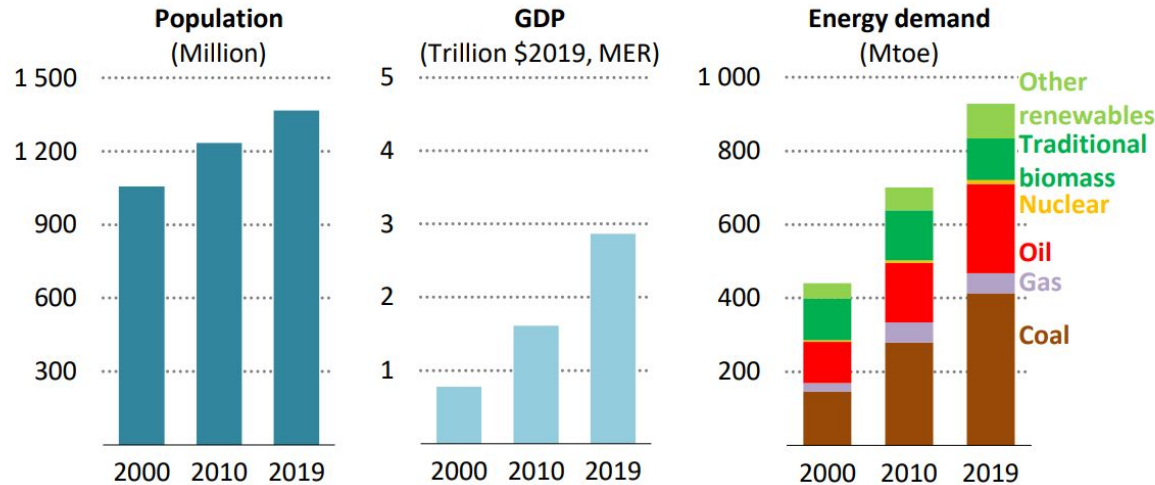
Huge problem for....

- The Grids
- Power producers
- Regulators & the government
 - Net metering
 - TOD prices
 - PLFs
 - Stop / Start for Thermal

India's energy trends

Source: [iea.org](https://www.iea.org) 2021 India Energy Outlook

Figure 1.1 ▶ Selected indicators for India, 2000, 2010 and 2019



Rising population and incomes since 2000 have underpinned a doubling of energy use in India, but per capita energy use is still less than 40% of the world average.

Update so far

- Solar installations are ramping up
- Storage, early steps but not so much
- EVs are here
- Massive intraday price swings in electricity
- Huge underinvestment in electricity, especially if Oil demand has to shift

Underinvestment in Coal / Petrol / Gas



Caption

Value Creation AND Destruction

- ❖ Coming decade will require huge investments for transition
- ❖ Some will create value, others will destroy the same

Important to be on the right side of the transition

Thank you